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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2003*.

2a)☐ This action is **FINAL**.　　　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☒ All　b)☐ Some * c)☐ None of:

　　　1.☒ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date *12/04/2003*.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 22 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. "Software" of applicant is not claimed as embodied in computer-readable media and is descriptive material per se and is not statutory because it is not capable of causing functional change in the computer. The claimed "software" does not define any structural and functional interrelationships between the "software" and other claimed aspects of the invention which permit the functionality of the "software" to be realized.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12, 15, and 22 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 12, 15, and 22 are Single Means claims (see section 2164.08(a) of

the MPEP). The means recitation of each of the claims does not appear in combination

with another recited element of means, and each impermissibly encompasses undue

breadth.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 8 rejected under 35 U.S.C. 102(b) as being anticipated by Forssell

et al. (Document Number: EP 1 006 695 A1), hereafter referred to as Forssell. Forssell

shows in paragraph [0006] and in Fig. 1a, page 14, the network of "a cellular radio

system" (substantively the same as "cellular network" in the instant invention).

Forssell teaches in paragraph [0013], lines 38 and 41, that "a Temporary Block

Flow (TBF) is created for transferring data packets on a packet data channel" for

services that include "voice services" (substantively the same as "a new packet-

switched dedicated channel carrying speech samples").

Forssell teaches in paragraph [0015], lines 47-48, "uplink resource allocation"

occurs when the "Mobile Station (MS) requests radio resources". Forssell also teaches

in paragraph [0026], line 15, "Downlink radio resource allocation". Forssell also teaches

in paragraph [0007], from line 58 of page 2 to line 1 of page 3, "packet data

transmission between mobile data terminals", implicitly teaching that transmissions

between mobile terminals involve an uplink for a transmitting mobile station and a

downlink for a receiving mobile station (substantively the same as "communication

occurs through a dedicated channel comprising both an uplink and at least one

downlink" in the instant invention).

Forssell shows in paragraph [0006], line 33, and Fig. 1a, page 14, "the core

network of a cellular system 10" (substantively the same as "core network

interconnecting them" in instant invention).

Forssell shows in paragraph [0007], lines 51-55, and Fig. 1b, page 14, the

"operational environment comprises one or more subnetwork service areas," which are

interconnected by a backbone network and where each "subnetwork comprises a

number of packet data service nodes", which provide a packet service for mobile data

terminals 151 via several base stations 152" (substantively the same as "a server

function or server controlling the flow of data packets" in the instant invention).

Forssell teaches in paragraph [0042], lines 40-41, that "the network is informed at

the end of an active period, on whether a passive period follows the active period", and,

in paragraph [0044], lines 55-56, "on a downlink channel, after one mobile station starts

to transmit, the other mobile stations may be reallocated to other channels", showing

that a passive period can occur after an active period on an uplink channel and on a

downlink channel, and a mobile station of the downlink channel can start transmitting on

the channel (substantively the same as "after the last speech packet sample packet

sent uplink, the dedicated channel used is kept up for a time of such duration that a new

uplink can be established, utilizing at least one downlink, from at least one terminal

connected to said downlink" in the instant invention).

Claim 8 appears to contain limitations in Claim 1, addressed above.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Forssell et

al. (Document Number: EP 1 006 695 A1) in view of Cromer (Pub. No.: US

2003/0186703 A1), hereafter referred to as Forssell and Cromer, respectively.

As for Claim 2, Forssell teaches in paragraph [0042], lines 40-41, "the network is

informed at the end of an active period, on whether a passive period follows the active

period or if the connection can be released" (substantively the same as "a step in which

the server determines when the last speech sample packet is sent" in the instant

invention).

Forssell teaches in paragraph [0044], lines 53-54, "on an uplink channel, after

one mobile station starts to transmit, the other mobile stations may be reallocated to

other channels", and in lines 56-57, "on a downlink channel, after one mobile station

starts to transmit, the other mobile stations may be reallocated to other channels"

(substantively the same as "a step in which it is determined whether a terminal taking

part in the session needs a new uplink" and "a step in which said uplink is established"

in the instant invention).

Forssell does not teach "server sends at least one post-speech packet downlink

to the receiving terminals". However, in the same field of endeavor, Cromer teaches in

paragraph [0010], of a "client device" connected "on a wireless local area network

(WLAN)", wherein the client device can receive a type of incoming packet called a

""ping" packet for maintaining a connection between the client device and the WLAN",

where a "ping" packet originates from the WLAN, different from a data packet, which

can originate from another user (substantively the same as "a step in which the server

sends at least one post-speech packet downlink to the receiving terminals" in the instant

invention). It would have been obvious to one skilled in the art at the time of the

invention to adopt the bandwidth throttle of Cromer in the real time data network of

Forssell since this would allow the network to have low-power maintenance of inactive

connections.

Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Forssell in

view of Upp et al. (Pub. No.: US 2004/0002351 A1), hereafter referred to as Upp.

As for Claim 3, Forssell teaches in paragraph [0034], pages 53-54, that the

"network sets the FBI field to '1' when it has no more RLC data blocks to send to the

mobile station" (substantively the same as "receiving terminal...receiving the last

speech sample packet" in the instant invention). Forssell does not teach that the

receiving terminal signals the user. However, in the same field of endeavor, Upp

teaches in paragraph [0003], "mobile communication device, which then alerts the user

that the channel is open and the user may commence speaking" (substantively the

same as "receiving terminal signals the user of the terminal" in the instant invention). It

would have been obvious to one skilled in the art at the time of the invention to adopt

the method and system for patching dispatch calling parties together and alerting users

of Upp with the real time data network of Forssell since it will allow the network to

efficiently form and connect talk groups for subscribers.

Claims 4-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Forssell

in view of Cromer, and in further view of Lechleider (Patent Number: 6,058,109) and

Rinchiuso et al. (Pub. No.: US 2004/0196861 A1), the last two references are hereafter

referred to as Lechleider and Rinchiuso, respectively.

As for Claim 4, the references as applied to Claim 2 teach all the limitations

except for number of post-speech packets to send and intervals in which to send post-

speech packets. However, in the same field of endeavor, Lechleider teaches in lines 34-36, column 6, of a system that "transmits at a rate of 2 packets per second" (substantively the same as "post-speech packets are sent...at intervals of 500 ms" in the instant invention). Lechleider teaches in lines 35-36, column 6, where a "uniform transmitter packet buffer 250 is 10 packets long", and Lechleider also teaches in lines 48-49, column 6, where a "packet buffer 330 initially waits until 10 packets have been stored before it initiates transmission", providing a situation where only 10 packets may be transmitted (substantively the same as "packets are sent...10 times" in the instant invention"). As indicated in line 28, column 6, these are illustrative examples, and Lechleider does not exclude that the buffers' operation could involve less than 10 packets (substantively the same as "packets are sent downlink 5 to 10 times" in the instant invention). It would have been obvious to one skilled in the art at the time of the invention to adopt the system of data transmission during link termination delays of Lechleider into the real time data network of Forssell since it would aid in maximizing the total data transmitted during the active period of a channel.

In the same field of endeavor, Rinchiuso teaches in paragraph [0031], "the delay period (X) is varied based on the data transmission rate. More particularly, as the data rate increases, the delay will increase proportionally. In the preferred embodiment of the present invention a delay of 200 msec is used for average data rates of 19 KBPS. The delay period is increased linearly to 500 msec for data rates of 100 KBPS. Varying the delay period in proportion to the data transmission rate" (substantively the same as "at intervals of 500 ms at most" in the instant invention). It would have been obvious to one

skilled in the art at the time of the invention to adopt the channel dropping delay based on data rate system of Rinchiuso into the real time data network of Forssell since it "can cut down on the bouncing effect, while minimizing the time period a remote unit needlessly holds" a channel (see paragraph [0031] of Rinchiuso).

As for Claim 5, Forssell teaches in paragraph [0043], lines 49-51, "The network may use a timer function for determining whether a passive period follows the active period or if the connection can be released." "...when a predetermined time of inactive data transfer has passed, the TBF is released" (substantively the same as "after the last post-speech packet the downlink used is released after a delay specific to the cellular network" in the instant invention).

Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Forssell in view of Cromer, Lechleider, Rinchiuso, and in further view of Schieder et al. (EP 1 139 613 A1), hereafter referred to as Schieder.

As for Claim 6, Forssell does not teach sending post-speech packet to the terminal that used the uplink. However, in the same field of endeavor, Schieder teaches in paragraph [0035], lines 51-54, and FIG. 5a, page 23, after the mobile station side transmits the last data block on an uplink (see item ST5a1, FIG 5a), "the network side will first transmit a so-called packet uplink acknowledgement/negative acknowledgement message in step ST5a2 ... to the subscriber terminal side" (substantively the same as "post-speech packets are also sent to the terminal that used

the uplink" in the instant invention). It would have been obvious to one skilled in the art

at the time of the invention to combine aspects of the real time data network of Forssell

with the network controller and communication system of Schieder since, in the network

of Forssell, "the physical connection of a packet radio service is kept reserved during

the passive periods of a session but the same physical resources can still be shared

between multiple users" (see abstract of Forssell).

Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Forssell in

view of Kajizaki et al. (Pub. No.: US 2001/0055317 A1), hereafter referred to as

Kajizaki.

As for Claim 7, the references as applied to Claims 1 and 2 teach all the

limitations except for appending packets together. However, in the same field of

endeavor, Kajizaki teaches in the abstract, "When a routing processing unit detects the

transmission of a ... number of packets addressed to the same destination ... A

combining unit assembles a combined packet" (substantively the same as "sending

terminal appends at least one post-speech packet to the last speech packet sent by it"

in the instant invention). It would have been obvious to one skilled in the art at the time

of the invention to adopt the packet combining of Kajizaki into the real time data network

of Forssell since packets below a certain size can result in unacceptable overhead and

inefficient link performance.

Claim 9 appears to contain limitations in Claims 1, 2, and 6, addressed above.

Claim 10 appears to contain limitations in Claim 4, addressed above.

As for Claim 11, Forssell does not teach information intended for the user terminal in the post-speech packet. However, Schieder further teaches in paragraph [0052], lines 37-38, "the entry of a new data packet in the network side transmitter queue is not detected", then, in lines 40-42, "the network side can also transmit a signalling message to the subscriber terminal side and in association therewith a transmitter queue information" (substantively the same as "include in post-speech packets information intended for the user of the terminal" in the instant invention). The motivation to combine the invention of Forssell with the invention of Schieder is discussed above with respect to Claim 6.

As for Claim 12, Forssell shows in paragraph [0084], and FIG. 10, page 20, shows a "block diagram of a mobile station 100", where a control unit (item 103) is substantively the same as the control unit of applicant, a RR-receiver, A/D-converter (item 111) is substantively the same as the receiver RX of applicant, a memory (item 104) is substantively the same as the memory of applicant, a modulator, RF-transmitter (item 123) is substantively the same as the transmitter TX of applicant, and a keyboard (item 131) and a display (item 132) are substantively the same as the user interface UI of applicant (substantively the same as "cellular terminal, which comprises a means for recognizing post-speech packets" in the instant invention).

Forssell does not teach a terminal recognizing post-speech packets. However, in the same field of endeavor, Schieder shows in paragraph [0035], lines 51-56, and in FIG. 5a, page 23, "the network side will first transmit a...message in step ST5a2", where "The message in step ST5a2 is to indicate to the subscriber terminal side", implicitly teaching that the subscriber terminal side, after sending data packets, can understand received non-data packets sent from the network side (substantively the same as "recognizing post-speech packets" in the instant invention). The motivation to combine the invention of Forssell with the invention of Schieder is discussed above with respect to Claim 6.

Claim 13 appears to contain limitations in Claims 3 and 12, addressed above.

Claim 14 appears to contain limitations in Claims 7 and 12, addressed above.

As for Claim 15, the references as applied to Claims 1 and 2 teach all the limitations of the instant invention except means for the limitations. Forssell further teaches in paragraph [0007], lines 53-55, and Fig. 1b, page 14, "serving GPRS support nodes (SGSN) 153, each of which is connected to the mobile telecommunications system (typically to a base station through an interworking unit) in such a way that it can provide a packet service for mobile data terminals 151 via several base stations 152, i.e. cells", where serving GPRS support node (SGSN) (see item 153) is substantively the same as router server of applicant.

Claim 16 appears to contain limitations in Claims 1, 2, and 6, addressed above.

As for Claim 17, Forssell does not teach that non-speech packets are sent from a server operating in the network. However, Schieder further shows in paragraph [0035], lines 51-54, and FIG. 5a, page 23, item ST5a2, that the network side will transmit a non-data message to the subscriber terminal after the subscriber terminal has finished sending data packets. Schieder also shows in paragraph [0087], lines 22-26, and FIG. 10, page 29, item ST102, that the network side NS will transmit a non-data packet after the network side NS has finished sending data packets. In both cases, it is not specified which network side (NS) element of FIG. 1, page 18, sends the non-data message and packet. As a result, Schieder implicitly teaches that any one of the network side (NS) element could be the origination of the non-data message or packet. Schieder teaches in paragraph [0006], lines 50-55, and FIG. 1, that a network side (NS) element is a SGSN, where a "node SGSN (SGSN: Serving GPRS Support Node) is provided which is interfaced via interfaces Gb, Gs, Gr with the base station controller BSC, the mobile switching centre MSC and the home location register HLR. Via the SGSN node an IP backbone network can be accessible in the conventional mobile communication network." (Substantively the same as "an element for sending post-speech packets is a server operating in the network" in the instant invention). The motivation to combine the invention of Forssell with the invention of Schieder is discussed above with respect to Claim 6.

As for Claim 18, the references as applied to Claim 17 teach all the limitations of the instant invention except router server. However, Schieder further shows in FIG. 2, page 19, that the SGSN (see also FIG. 1, page 18, item SGSN) operates with the Layer 3, IP-based protocols SNDCP and GTP, teaching that the SGSN provides routing functions (substantively the same as "the server sending post-speech packets is a router server" in the instant invention). The motivation to combine the invention of Forssell with the invention of Schieder is discussed above with respect Claim 6.

As for Claim 19, Forssell teaches in paragraph [0062], lines 28-30, and FIG. 5, page 16, "When the CV' value is set to "0" the network interprets it so that the first mobile station has no more RLC data blocks to be transmitted at the time and the network may therefore give the next N uplink transmit permissions to some other mobile station/stations", and, in lines 34-35, "If the mobile station does not have data to be transmitted, to the network at the time, the mobile station may omit the uplink transmit permission or it may transmit a Packet Dummy Control Block or a signalling message" (substantively the same as "an element for sending post-speech packets is a terminal ending its transmission" in the instant invention).

Claim 20 appears to contain limitations in Claim 4, addressed above.

Claim 21 appears to contain limitations in Claim 5, addressed above.

Claim 22 appears to contain limitations in Claim 2, addressed above.

As for Claim 23, Forssell teaches in paragraph [0086], lines 40-42,47-49, "the processing of information in a telecommunication device takes place in an arrangement of processing capacity in the form of microprocessor(s) and memory in the form of memory circuits. Such arrangements are known as such from the technology of mobile stations and fixed network elements", and "On the network side, the features according to the invention can be implemented e.g. in the Packet Control Unit PCU", where "The packet control unit may be located e.g. in the ... Serving GPRS Support Node SGSN" (substantively the same as "software means according to claim 22 stored on a data storage medium in order to load the software means to an appropriate data processing device" in the instant invention).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Harsch (Patent No.: US 6,212,175 B1) provides the use of keep alive packets to maintain wireless connections in a TCP connection. Dolwin (Patent No.: US 7,142,525 B2) provides transmission of empty frames to maintain link. Kari (Patent No.: US 6,243,579 B1) provides pseudo data packet sent from mobile station to prevent going into standby mode and dropping active connection. Hjelm et al. (Patent
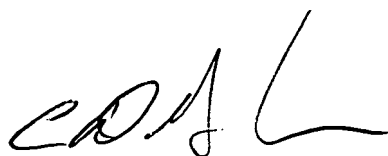
No.: US 6,529,497 B1) gives a situation where a channel is shared among users by exploiting their inactive periods. Shaffer et al. (Patent Number: 6,003,089) provides a packet combining method. Gilchrist et al. (Patent Number: 5,745,695) and Surazski et al. (Patent No.: US 6,873,604 B1) provide timing of inactive time periods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Smith whose telephone number is 571-270-1826. The examiner can normally be reached on Monday through Friday, 7:30 AM to 5:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on 571-272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CHARLES D. GARBER
SUPERVISORY PATENT EXAMINER